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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/512,228	02/24/2000	Elso DiFranco	IP 5919	5659
25230	7590	02/10/2004	EXAMINER	
DARA L ONOFRIO			ANTHONY, JOSEPH DAVID	
ONOFRIO LAW				
1133 BROADWAY			ART UNIT	
SUITE 1600			PAPER NUMBER	
NEW YORK, NY 10010			1714	

DATE MAILED: 02/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/512,228

Applicant(s)

DIFRANCO, ELSO

Examiner

Joseph D. Anthony

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 21-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 February 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other:

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-20, drawn to a method for treating fatty acids, classified in class 530, subclass 233.
  - II. Claims 21-23, drawn to oleic acid and linoleic dimmer/trimer acids, classified in class 544, subclass 31.
  - III. Claims 23-26, drawn to a method of isolating oleic acid, classified in class 544, subclass 190.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and III are patentably distinct since the process of Group I requires the use of iodine as a conjugation catalyst whereas the process of Group III has no such requirement, such that an alkali type catalyst or a platinum metal group element/compound could be used as the conjugation reaction catalyst or no catalyst at all may be used but instead high heat is used.

3. Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by using

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an alkali type catalyst or a platinum metal group element/compound as the conjugation reaction catalyst or not catalyst at all may use but instead using high heat is used.

4. Inventions II and III are unrelated because the product of Group II is not made by the process of Group III.

5. Because the inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

6. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

7. During a telephone conversation with Dara L. Onofrio on 2/25/03 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-20.

Affirmation of this election must be made by applicant in replying to this Office action.

Claims 21-26 are withdrawn from further consideration by the examiner, 37

CFR 1.142(b), as being drawn to a non-elected invention.

***Claim Rejections - 35 USC § 112***

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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9. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Independent claim 1 is deemed to be indefinite in regards to the metes and bonds of the scope of the "iodine" catalyst component. While iodine is well known in the art to mean a gas having the chemical formula of:  $I_2$ , applicant's specification seems to indicate that iodide salts may also come within applicant's "definition" of the term "iodine", see Example 6 wherein "iron iodine  $FeI_2$ " is used instead of just " $I_2$ ". Clarification is required. As such, for the below prior-art rejection the broadest reasonable interpretation of applicant's claims will be taken, and this interpretation will include iodide salts as within the scope of applicant's claimed iodine catalyst component.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1-6, 8-16 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuo et al. U.S. Patent Number 4,271,066 in view of (applicant's

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cited "Journal Of The American Oil Chemists Society" volume 44, No. 3. pages 502-505" or Jeve et al. U.S. Patent Number 4,156,095 or Myers et al. U.S. Patent Number 2,955,121; all said secondary references used for all claims except claims 12-13) or in view of (Harrison U.S. Patent Number 2,964,545 for all claims except claims 10-11).

Matsuo et al teaches a process for conjugating and disroptionating of tall oil fatty acids using an iodine catalyst plus an iron compound co-catalyst at temperatures between 180 degrees C and 280 degrees C, see the abstract, column 3, line 27 to column 4, line 19 and Examples 9-12. Matsuo differs from applicant's claimed invention in that there is no direct disclosure to applicant's claimed polymerization step wherein the conjugated polyunsaturated components of the fatty acid mixture are reacted to form linoleic dimer/trimer acids with oleic acid byproducts.

"Journal Of The American Oil Chemists Society" volume 44, No. 3. Pages 502-505" directly teaches that it is well known in the art to use Filtrol 13 (a crystalline clay catalyst) and an optional lithium compound co-catalyst as polymerization catalyst for polymerizing fatty acids that contain polyunsaturated components, preferably conjugated fatty acids (e.g. conjugated linoleic acid) to produce linoleic dimer/trimer acids and oleic acid byproducts. The polymerization temperature is about 180 degrees C. The linoleic dimer/trimer acids and oleic acid byproducts are than separated, such as by distillation.

Javne et al teaches in the background section that crystalline clays are known catalyst for dimerization of polyunsaturated monocarboxylic fatty acid at

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temperatures between 180 degrees c and 260 degrees C, see column 1, lines 57-61. Jevne et al also directly teaches that mixtures of crystalline clay catalyst and lithium carbonate co-catalyst are especially effective catalyst mixtures for reacting tall oil fatty acids with acrylic acid to produce C21 dicarboxylic acid, see column 2, lines 36-64 and the examples. Also note that phosphoric acid is used as a neutralizing aid and filtration aid for the polymerization product, See Example III.

Myers et al teaches the use of crystalline clay catalyst plus alkali co-catalyst as polymerization catalyst for unsaturated fatty acid to produce linoleic dimer/trimer acids and oleic acid byproducts. Also note that phosphoric acid is used as a neutralizing aid and filtration aid for the polymerization product, see column 1, line 15 to column 2, line 42, column 3, lines 33-50, column 4, lines 18-20 and the examples.

Harrison teaches that it is well known in the art to conjugate and dimeritize fatty acids containing at least two double bonds by using t-butyl peroxide which functions as both the conjugating and dimertizing catalyst, see column 2, line 50 to column 3, line 22, Example 1 and the claims.

It would have been obvious to one having ordinary skill in the art to use the direct teachings of cited "Journal Of The American Oil Chemists Society" volume 44, No. 3. Pages 502-505" or Jevne et al. U.S. Patent Number 4,156,095 or Myers et al. U.S. Patent Number 2,955,121 as motivation to actually perform a polymerizing step, after the conjugation step, on the fatty acids in order to

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produce linoleic dimer/trimer acids plus oleic acid byproducts. The use of crystalline clay catalyst and a lithium carbonate co-catalyst are also obvious over these secondary references. (excludes claims 12-13)

Likewise it would have been obvious to one having ordinary skill in the art to use the direct teaching of Harrison as motivation to actually perform a polymerizing step of the conjugated fatty acids to produce linoleic dimer/trimer acids plus oleic acid byproducts. The use of t-butyl peroxide as the polymerizing catalyst is also deemed to be obvious over Harrison (excludes claims 10-11).

12. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Claims 1-6, 8-16 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuo et al. U.S. Patent Number 4,271,066 in view of (applicant's cited "Journal Of The American Oil Chemists Society" volume 44, No. 3. pages 502-505" or Jevé et al. U.S. Patent Number 4,156,095 or Myers et al. U.S. Patent Number 2,955,121; all said secondary references used for all claims except claims 12-13) or in view of (Harrison U.S. Patent Number 2,964,545 for all claims except claims 10-11); all said combinations still further in view of Frankel U.S. Patent Number 3,373,175.

This rejection builds on the rejection above. Matsuo et al further differs from applicant's claimed invention in that there is no direct teaching to where the conjugation co-catalyst is applicant claimed species of iron(III) chloride.

It would have been obvious to one having ordinary skill in the art to use the disclosure of Frankel to where iron pentacarbonyl is used as a conjugation



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catalyst for polyunsaturated vegetable oils followed by the addition of iron(III) chloride co-catalyst to decompose the conjugated fatty iron tricarboxylic acid complex to give the free conjugated fatty acids, as motivation to actually use iron(III) chloride as a co-catalyst in the conjugation reactions as disclosed by Matsuo et al.. This is especially obvious because Matsuo et al directly discloses the use of iron co-catalyst. Furthermore, applicant has set forth no evidence of any superior or unexpected results when iron(III) chloride is used as the co-catalyst species in combination with the iodine conjugation catalyst.

13. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuo et al. U.S. Patent Number 4,271,066 in view of (applicant's cited "Journal Of The American Oil Chemists Society" volume 44, No. 3. pages 502-505" or Jevé et al. U.S. Patent Number 4,156,095 or Myers et al. U.S. Patent Number 2,955,121; all said secondary references used for all claims except claims 12-13) or in view of (Harrison U.S. Patent Number 2,964,545 for all claims except claims 10-11); all said combinations further in view of Sturwold U.S. Patent Number 4,885,104 or Papay et al. U.S. patent Number 5,652,201.

This rejection builds on the rejection made in section 11 above. The above combination rejections using Matsuo et al as the primary reference further differ from applicant's claimed invention in that there is no direct disclosure to the further addition of diatomaceous earth as a filtering aid for the linoleic dimer/trimer acids and oleic acid reaction products.

It would have been obvious to one having ordinary skill in the art to use the disclosure of either Sturwold or Papay et al as motivation to actually use diatomaceous earth as a filtering aid for the linoleic dimer/trimer acids and oleic acid reaction products since both references individually teach that diatomaceous earth is a well known filtering aid for lubricating oil compositions derived from natural fats and oils, see Example 1 of Sturwold and Example A-2 of Papay et al..

14. Claims 1-4, 9-16 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ralston et al. U.S. Patent Number 2,411,111 in view of (applicant's cited "Journal Of The American Oil Chemists Society" volume 44, No. 3. pages 502-505" or Jeve et al. U.S. Patent Number 4,156,095 or Myers et al. U.S. Patent Number 2,955,121; all said secondary references used for all claims except claims 12-13) or in view of (Harrison U.S. Patent Number 2,964,545 for all claims except claims 10-11).

Ralston et al teaches a method wherein unconjugated polyene materials (e.g. unconjugated linoleic acid) is treated with an amine hydroiodide conjugation catalyst to conjugate the said unconjugated linoleic acid. The reaction temperature is between 200 degrees C and 300 degrees C. The concentration of the amine hydroiodide catalyst is well within applicant's claimed range, see column 1, lines 1-44, column 2, line 37 to column 3, line 49, the examples, and the claims. Ralston et al differs from applicant's claimed invention in that there is no direct disclosure to applicant's claimed polymerization step wherein the

conjugated polyunsaturated components of the fatty acid mixture are reacted to form linoleic dimer/trimer acids with oleic acid byproducts.

"Journal Of The American Oil Chemists Society" volume 44, No. 3. Pages 502-505" directly teaches that it is well known in the art to use Filtrol 13 (a crystalline clay catalyst) and an optional lithium compound co-catalyst as polymerization catalyst for polymerizing fatty acids that contain polyunsaturated components, preferably conjugated fatty acids (e.g. conjugated linoleic acid) to produce linoleic dimer/trimer acids and oleic acid byproducts. The polymerization temperature is about 180 degrees C. The linoleic dimer/trimer acids and oleic acid byproducts are then separated, such as by distillation.

Javne et al teaches in the background section that crystalline clays are known catalyst for dimerization of polyunsaturated monocarboxylic fatty acid at temperatures between 180 degrees c and 260 degrees C, see column 1, lines 57-61. Jevne et al also directly teaches that mixtures of crystalline clay catalyst and lithium carbonate co-catalyst are especially effective catalyst mixtures for reacting tall oil fatty acids with acrylic acid to produce C21 dicarboxylic acid, see column 2, lines 36-64 and the examples. Also note that phosphoric acid is used as a neutralizing aid and filtration aid for the polymerization product, See Example III.

Myers et al teaches the use of crystalline clay catalyst plus alkali co-catalyst as polymerization catalyst for unsaturated fatty acid to produce linoleic dimer/trimer acids and oleic acid byproducts. Also note that phosphoric acid is

used as a neutralizing aid and filtration aid for the polymerization product, see column 1, line 15 to column 2, line 42, column 3, lines 33-50, column 4, lines 18-20 and the examples.

Harrison teaches that it is well known in the art to conjugate and dimeritize fatty acids containing at least two double bonds by using t-butyl peroxide which functions as both the conjugating and dimertizing catalyst, see column 2, line 50 to column 3, line 22, Example 1 and the claims.

It would have been obvious to one having ordinary skill in the art to use the direct teachings of cited "Journal Of The American Oil Chemists Society" volume 44, No. 3. Pages 502-505" or Jeve et al. U.S. Patent Number 4,156,095 or Myers et al. U.S. Patent Number 2,955,121 as motivation to actually perform a polymerizing step, after the conjugation step, on the fatty acids in order to produce linoleic dimer/trimer acids plus oleic acid byproducts. The use of crystalline clay catalyst and a lithium carbonate co-catalyst are also obvious over these secondary references. (excludes claims 12-13)

Likewise it would have been obvious to one having ordinary skill in the art to use the direct teaching of Harrison as motivation to actually perform a polymerizing step of the conjugated fatty acids to produce linoleic dimer/trimer acids plus oleic acid byproducts. The use of t-butyl peroxide as the polymerizing catalyst is also deemed to be obvious over Harrison (excludes claims 10-11).

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15. Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ralston et al. U.S. Patent Number 2,411,111 in view of (applicant's cited "Journal Of The American Oil Chemists Society" volume 44, No. 3. pages 502-505" or Jeve et al. U.S. Patent Number 4,156,095 or Myers et al. U.S. Patent Number 2,955,121; all said secondary references used for all claims except claims 12-13) or in view of (Harrison U.S. Patent Number 2,964,545 for all claims except claims 10-11); all said combinations still further in view of Matsuo et al. U.S. Patent Number 4,271,066 and/or (Frankel U.S. Patent Number 3,373,175.

This rejection builds on the rejection above. Ralston et al further differs from applicant's claimed invention in that there is no direct disclosure to the further addition of a conjugating co-catalyst, such as iron powder or iron(III) chloride.

It would have been obvious to one having ordinary skill in the art to use the disclosure of Matsuo et al (described above) as motivation to actually use iron or an iron complex as a conjugating co-catalyst in Ralston et al process. It would also have been obvious to use the disclosure of Frankel to where iron pentacarbonyl is used as a conjugation catalyst for polyunsaturated vegetable oils followed by the addition of iron(III) chloride co-catalyst to decompose the conjugated fatty iron tricarboxylic acid complex to give the free conjugated fatty acids, as motivation to actually use iron pentacarbonyl and iron(III) chloride as co-catalysts in the conjugation reactions as disclosed by Ralston et al..

16. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ralston et al. U.S. Patent Number 2,411,111 in view of (applicant's cited "Journal Of The American Oil Chemists Society" volume 44, No. 3. pages 502-505" or Jeve et al. U.S. Patent Number 4,156,095 or Myers et al. U.S. Patent Number 2,955,121; all said secondary references used for all claims except claims 12-13) or in view of (Harrison U.S. Patent Number 2,964,545 for all claims except claims 10-11); all said combinations further in view of Sturwold U.S. Patent Number 4,885,104 or Papay et al. U.S. patent Number 5,652,201.

This rejection builds on the rejection made in section 14 above. The above combination rejections using Ralston et al as the primary reference further differ from applicant's claimed invention in that there is no direct disclosure to the further addition of diatomaceous earth as a filtering aid for the linoleic dimer/trimer acids and oleic acid reaction products.

It would have been obvious to one having ordinary skill in the art to use the disclosure of either Sturwold or Papay et al as motivation to actually use diatomaceous earth as a filtering aid for the linoleic dimer/trimer acids and oleic acid reaction products since both references individually teach that diatomaceous earth is a well known filtering aid for lubricating oil compositions derived from natural fats and oils, see Example 1 of Sturwold and Example A-2 of Papay et al..

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## **17. INFORMATION ON HOW TO EFFECT DRAWING CHANGES**

Applicant has submitted informal drawings which are acceptable for examination purposes. Applicant needs to submit new Formal drawings that are written more clearly (i.e. should be typed and not hand written).

### **Replacement Drawing Sheets**

Drawing changes must be made by presenting replacement figures which incorporate the desired changes and which comply with 37 CFR 1.84. An explanation of the changes made must be presented either in the drawing amendments, or remarks, section of the amendment. Any replacement drawing sheet must be identified in the top margin as "Replacement Sheet" and include all of the figures appearing on the immediate prior version of the sheet, even though only one figure may be amended. The figure or figure number of the amended drawing(s) must not be labeled as "amended." If the changes to the drawing figure(s) are not accepted by the examiner, applicant will be notified of any required corrective action in the next Office action. No further drawing submission will be required, unless applicant is notified.

Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin.

### **Annotated Drawing Sheets**

A marked-up copy of any amended drawing figure, including annotations indicating the changes made, may be submitted or required by the examiner. The annotated drawing sheets must be clearly labeled as "Annotated Marked-up Drawings" and accompany the replacement sheets.

### **Timing of Corrections**

Applicant is required to submit acceptable corrected drawings within the time period set in the Office action. See 37 CFR 1.85(a). Failure to take corrective action within the set period will result in ABANDONMENT of the application.

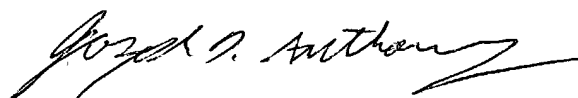
If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings MUST be filed within the THREE MONTH shortened statutory period set for reply in the "Notice of Allowability." Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136 for filing the corrected drawings after the mailing of a Notice of Allowability.

***Prior-Art Cited But Not Applied***

18. Any prior-art reference which is cited on FORM PTO-892 but not applied, is cited only to show the general state of the prior-art at the time of applicant's invention.

***Examiner Information***

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Joseph D. Anthony whose telephone number is (571) 272-1117. This examiner can normally be reached on Monday through Thursday from 8:00 a.m. to 6:30 p.m. in the eastern time zone. If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Vasu Jagannathan, can be reached on (571) 272-1119. The centralized FAX machine number is (703) 872-9306. All other papers received by FAX will be treated as Official communications and cannot be immediately handled by the Examiner.



**Joseph D. Anthony**  
**Primary Patent Examiner**  
**Art Unit 1714**

1/29/04